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(54) **INSTRUMENT STERILIZATION CONTAINER**

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A61L 2/07 (2006.01)

(52) **U.S. Cl.**
CPC .. ***A61L 2/04*** (2013.01); ***A61L 2/07*** (2013.01); *A61L 2202/122* (2013.01); *A61L 2202/24* (2013.01)

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See application file for complete search history.

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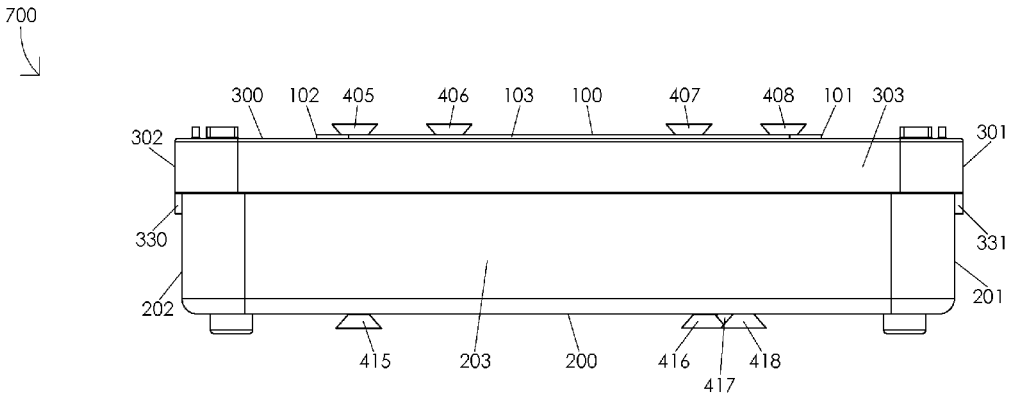
(57) **ABSTRACT**

An instrument sterilization container may include a base, a lid, a retention mechanism extending out from a base floor of the base, a first support mechanism extending out from a lid top of the lid, and a second support mechanism extending out from the base floor. A reusable instrument handle may be disposed between the first support mechanism, the second support mechanism, the retention mechanism, and a portion of the base. The portion of the base and the retention mechanism may be configured to prevent an actuation structure of the reusable instrument handle from extending during a sterilization of the reusable instrument handle in a medical autoclave. The first support mechanism and the second support mechanism may be configured to prevent the actuation structure from expanding during a sterilization of the reusable instrument handle in a medical autoclave.

20 Claims, 8 Drawing Sheets



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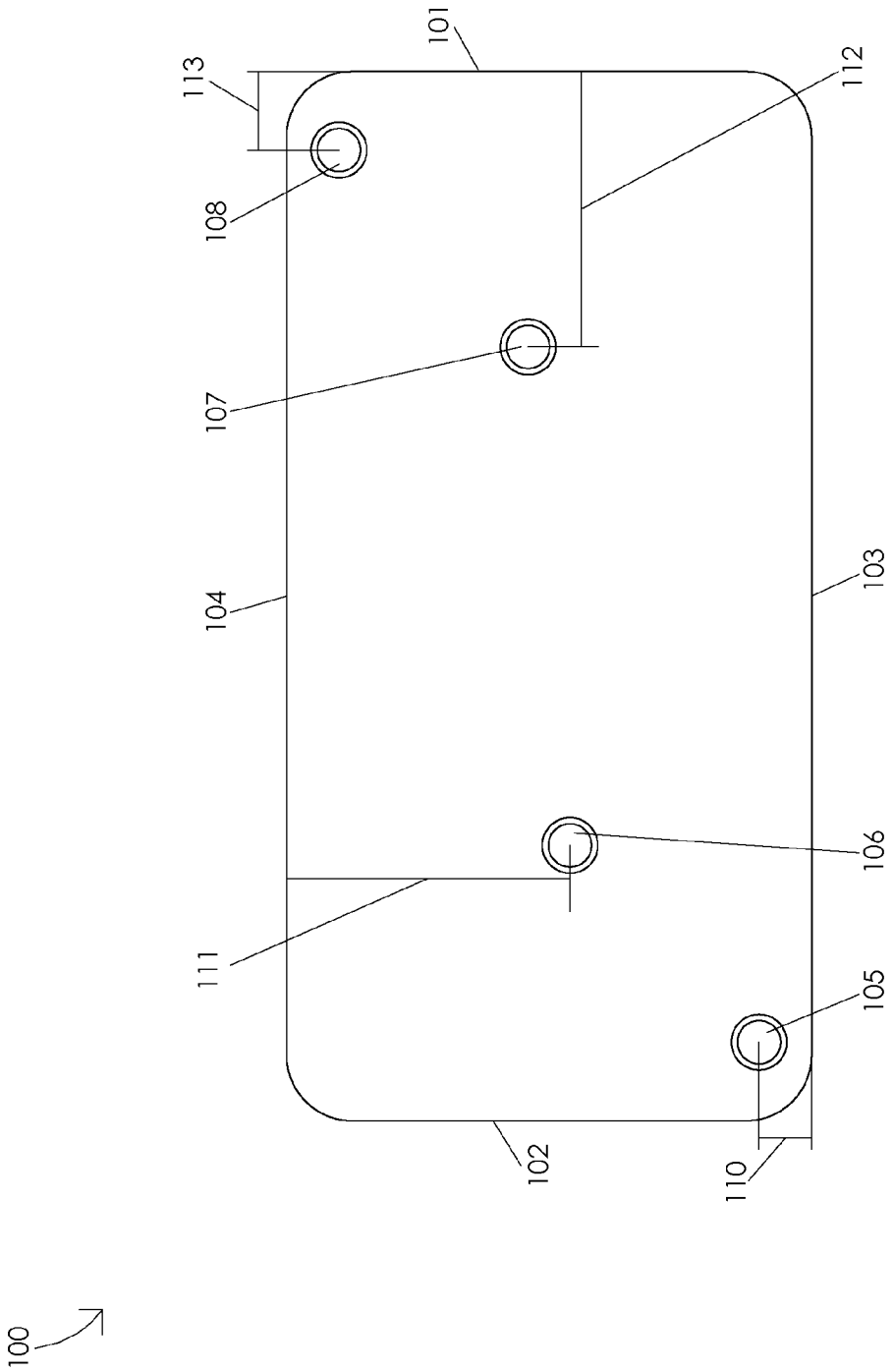


FIG. 1

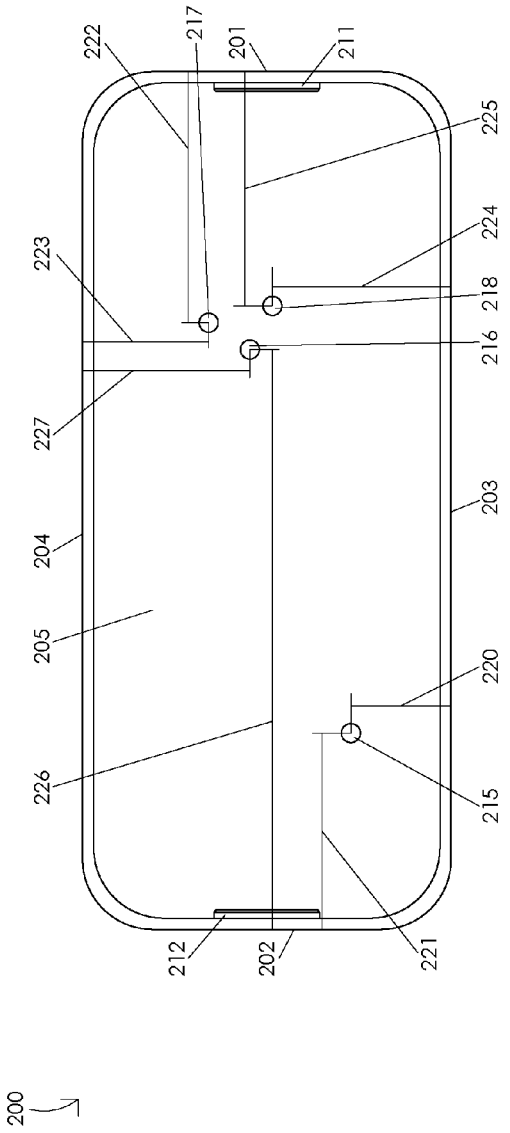

222
217
201
211
225
224
223
218
216
227
203
204
205
220
226
215
212
202
221
200

FIG. 2A

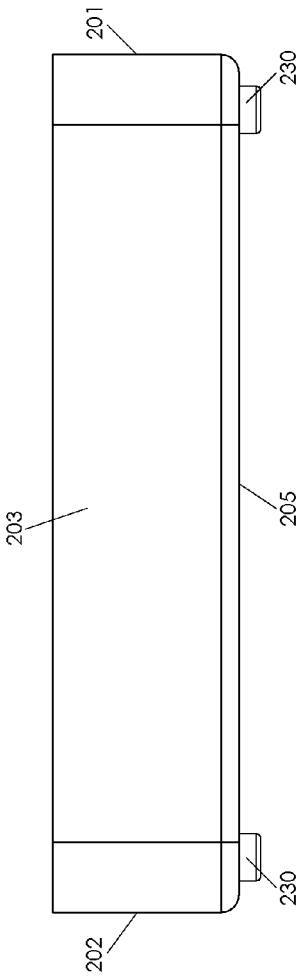
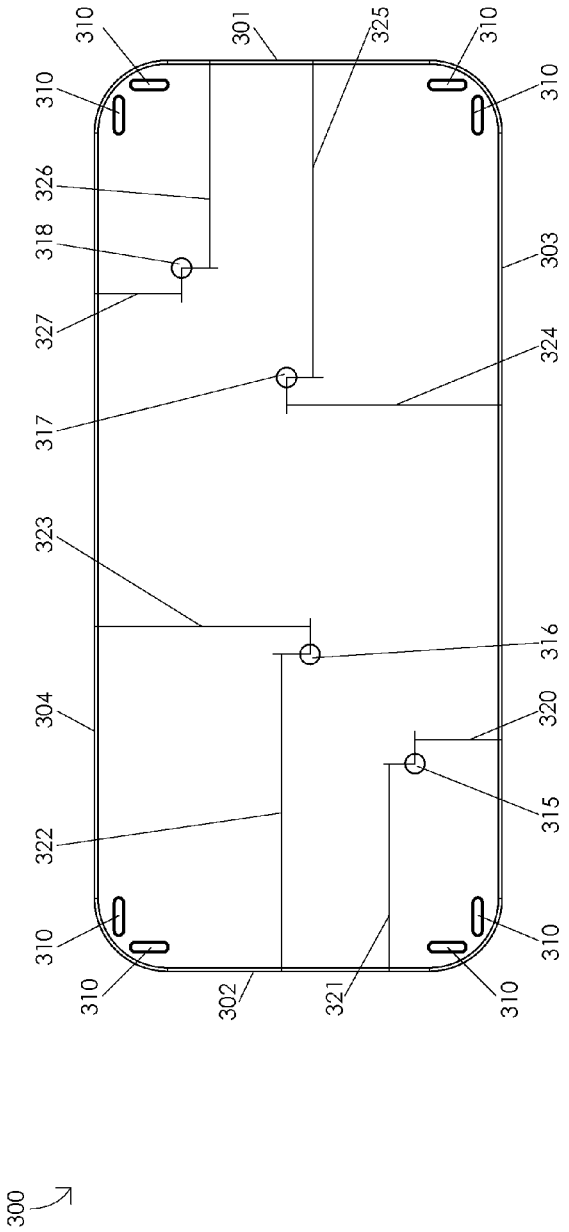

201
230
203
205
230
202
200

FIG. 2B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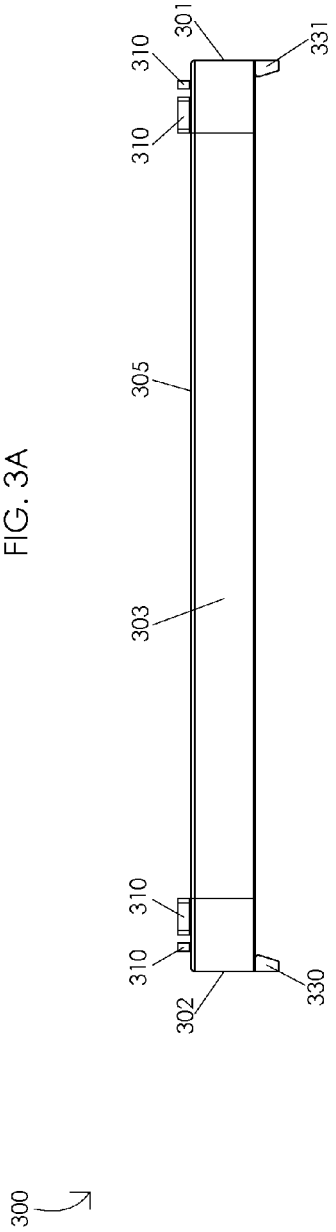
310
301
325
310
310
310
326
318
303
327
324
317
323
316
304
320
315
322
310
310
310
310
302
321

FIG. 3A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301
331
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305
303
310
310
310
302
330

FIG. 3B

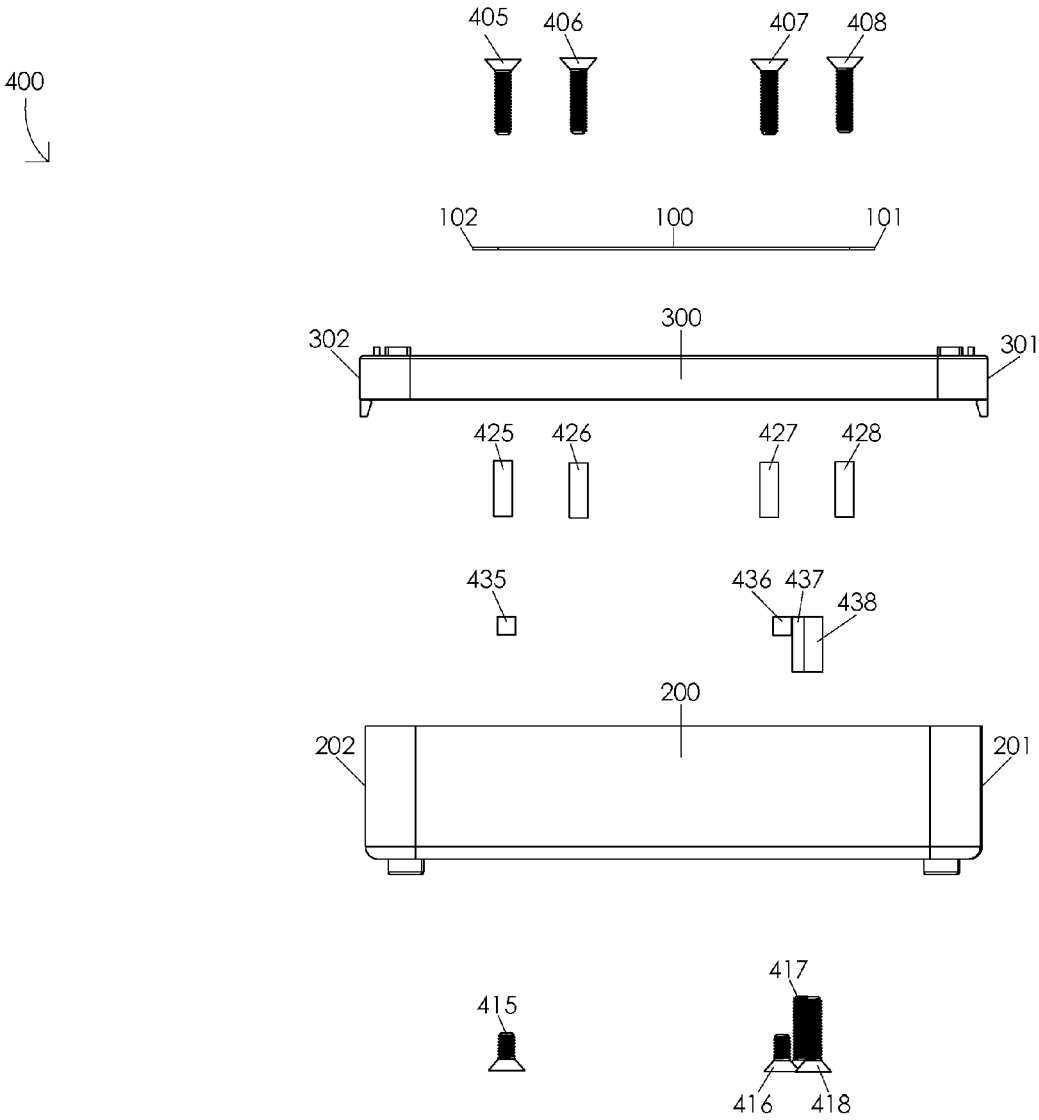
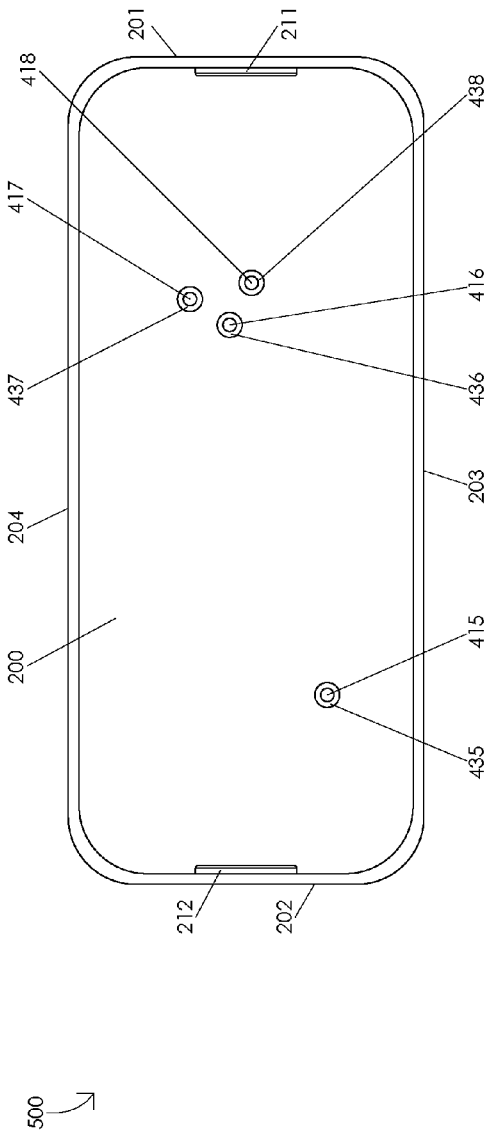

400
405
406
407
408
102
100
101
300
302
301
425
426
427
428
435
436
437
438
200
202
201
415
417
416
418

FIG. 4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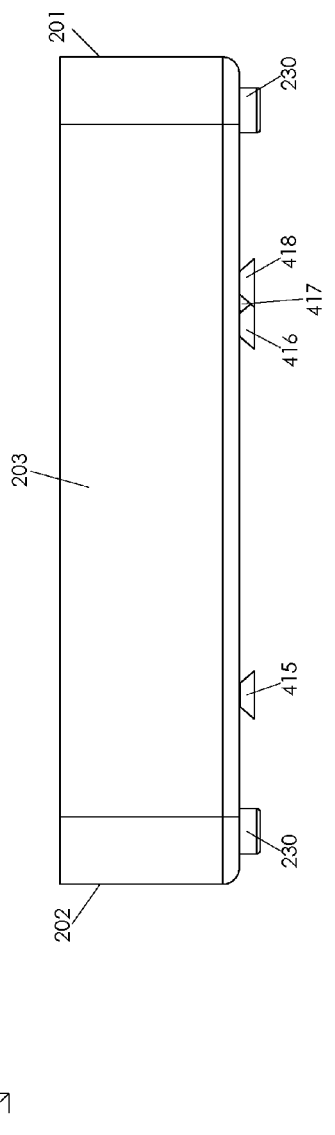
211
418
438
417
416
437
436
203
204
200
415
435
212
202
500

FIG. 5A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203
415
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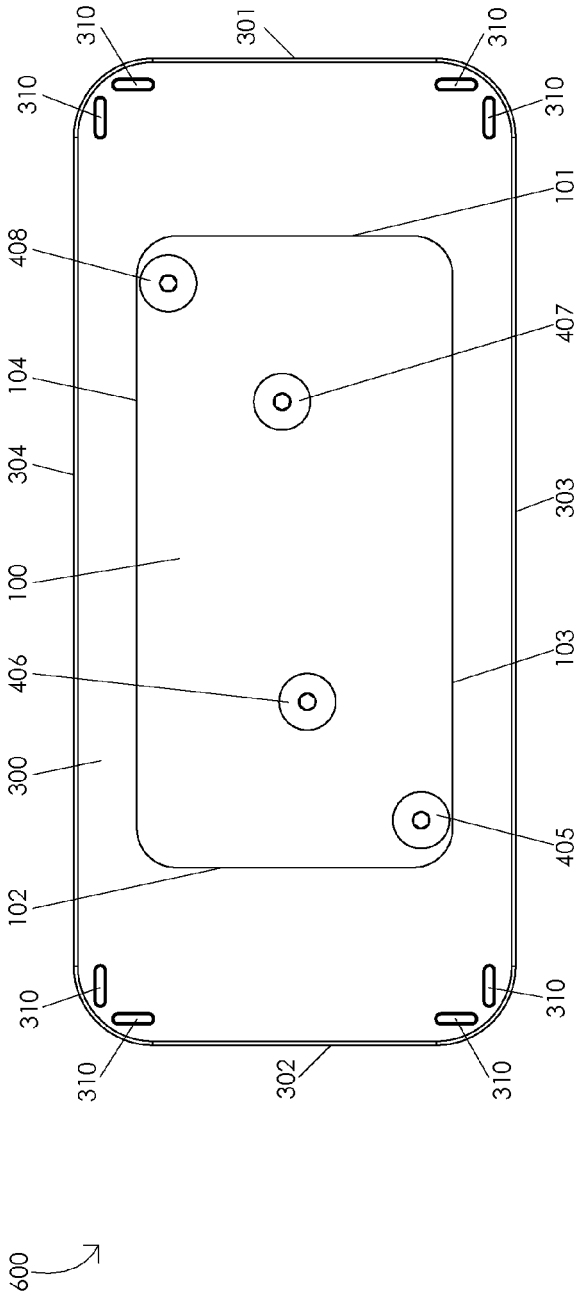
202
500

FIG. 5B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301
310
310
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101
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104
304
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103
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300
405
102
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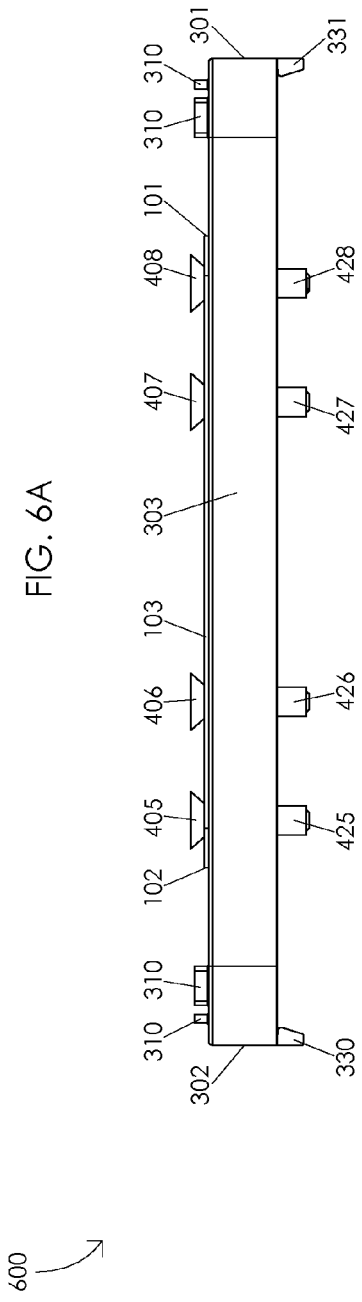
302
310

FIG. 6A


600
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301
331
310
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101
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428
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427
303
103
406
426
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425
102
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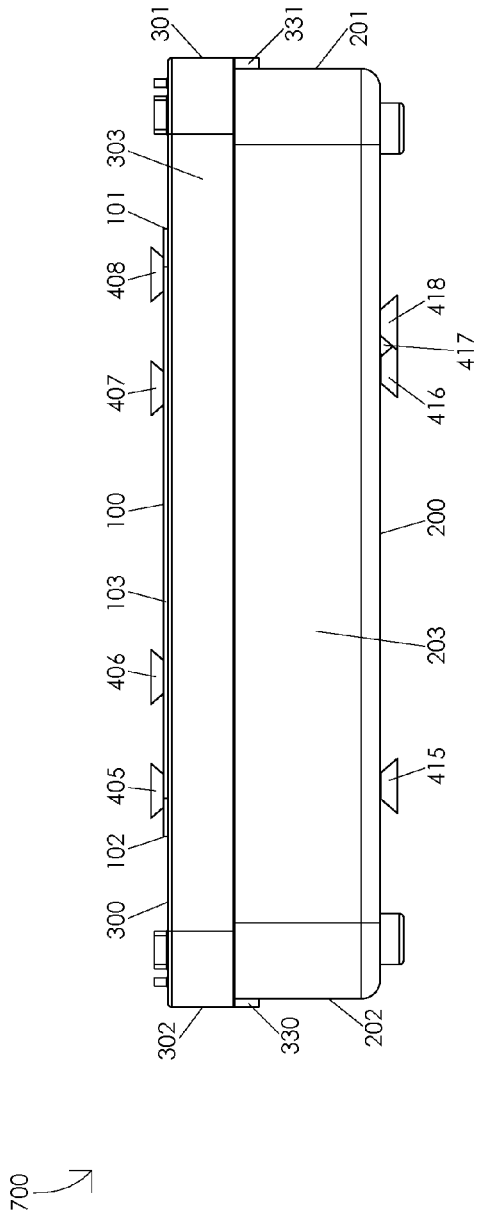
302
330

FIG. 6B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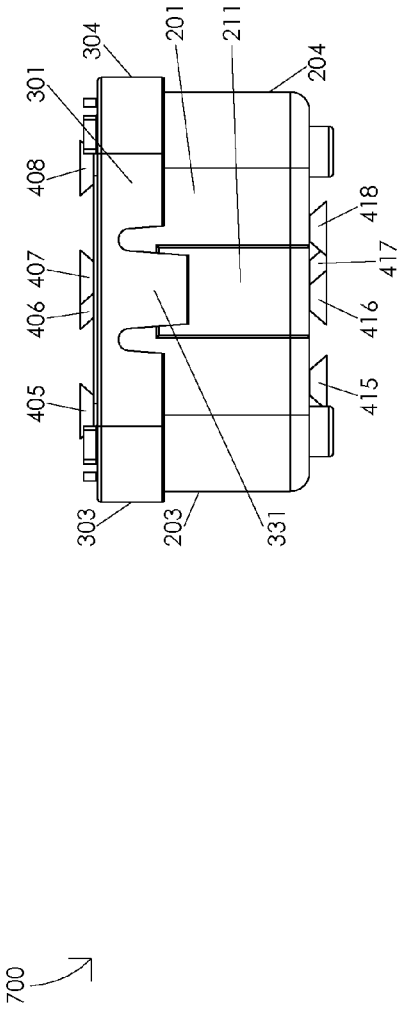
331
201
303
101
408
418
417
407
416
100
200
103
203
406
405
415
102
300
302
330
202
700

FIG. 7A


304
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408
418
417
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416
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415
303
203
331
700

FIG. 7B

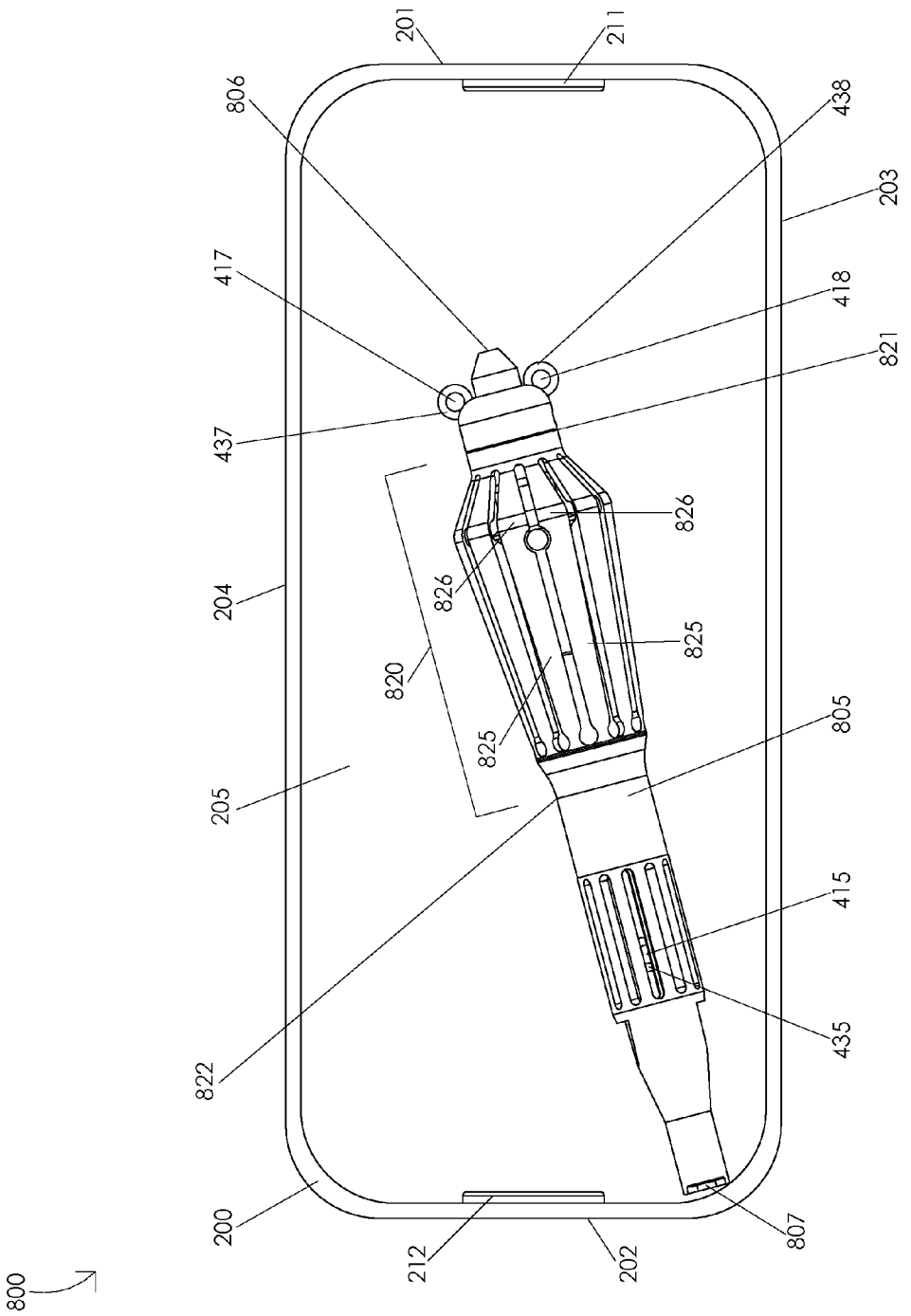
800
200
201
202
203
204
205
211
212
417
418
437
438
805
806
807
820
821
822
825
826
415
435

FIG. 8

INSTRUMENT STERILIZATION CONTAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

This Application claims the benefit of U.S. Provisional Application No. 61/971,304, filed Mar. 27, 2014.

FIELD OF THE INVENTION

The present disclosure relates to a medical device container, and, more particularly, to an instrument sterilization container.

BACKGROUND OF THE INVENTION

A wide variety of surgical instruments are reusable. Reusable surgical instruments must be cleaned and sterilized before use in surgery. Many reusable surgical instruments are steam sterilized within a medical autoclave after a surgeon completes a surgical procedure. Typically, reusable surgical instruments are collected, e.g., by a technician, after the instruments have been used in surgery. The used, non-sterile surgical instruments are then sterilized in a medical autoclave. Once sterilized, an instrument is ready for use in another surgical procedure.

Reusable microsurgical instruments, e.g., ophthalmic surgical instruments, are frequently damaged during cleaning and sterilization. These instruments are particularly susceptible to damage due to their micro-scale dimensions. Moreover, instrument components manufactured from polymers, e.g., thermoplastics, may experience undesirable changes after exposure to high temperature steam in a medical autoclave. For example, an actuation structure of an instrument handle may extend a first distance when compresses prior to sterilization in a medical autoclave. The actuation structure of the instrument handle may expand slightly during sterilization in a medical autoclave. After sterilization, the actuation structure of the instrument handle may extend a second distance when compressed and the instrument may no longer function as intended. Accordingly, there is a need for protecting reusable microsurgical instruments during sterilization in a medical autoclave and for ensuring reusable microsurgical instruments function as intended after sterilization in a medical autoclave.

BRIEF SUMMARY OF THE INVENTION

An instrument sterilization container is presented. In one or more embodiments, an instrument sterilization container may comprise a base, a lid, a retention mechanism extending out from a base floor of the base, a first support mechanism extending out from a lid top of the lid, and a second support mechanism extending out from the base floor. Illustratively, a reusable instrument handle may be disposed between the first support mechanism, the second support mechanism, the retention mechanism, and a portion of the base. In one or more embodiments, the portion of the base and the retention mechanism may be configured to prevent an actuation structure of the reusable instrument handle from extending during a sterilization of the reusable instrument handle in a medical autoclave. Illustratively, the first support mechanism and the second support mechanism may be configured to prevent the actuation structure from expanding during a sterilization of the reusable instrument handle in a medical autoclave.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and further advantages of the present invention may be better understood by referring to the following description in conjunction with the accompanying drawings in which like reference numerals indicate identical or functionally similar elements:

FIG. **1** is a schematic diagram illustrating a nameplate;

FIGS. **2**A and **2**B are schematic diagrams illustrating a base;

FIGS. **3**A and **3**B are schematic diagrams illustrating a lid;

FIG. **4** is a schematic diagram illustrating an exploded view of an instrument sterilization container assembly;

FIGS. **5**A and **5**B are schematic diagrams illustrating an assembled base;

FIGS. **6**A and **6**B are schematic diagrams illustrating an assembled lid;

FIGS. **7**A and **7**B are schematic diagrams illustrating an assembled instrument sterilization container;

FIG. **8** is a schematic diagram illustrating an instrument orientation.

DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT

FIG. **1** is a schematic diagram illustrating a nameplate **100**. Nameplate **100** may be configured to convey information, e.g., nameplate **100** may be configured to convey sterilization information. In one or more embodiments, nameplate **100** may comprise a nameplate distal end **101**, a nameplate proximal end **102**, a nameplate dorsal end **103**, a nameplate ventral end **104**, a first nameplate aperture **105**, a second nameplate aperture **106**, a third nameplate aperture **107**, and a fourth nameplate aperture **108**. Illustratively, first nameplate aperture **105** may be disposed a first nameplate distance **110** from nameplate dorsal end **103**. In one or more embodiments, first nameplate distance **110** may be a distance in a range of 0.1 to 0.3 inches, e.g., first nameplate distance **110** may be a distance of 0.2 inches. Illustratively, first nameplate distance **110** may be a distance of less than 0.1 inches or greater than 0.3 inches. In one or more embodiments, second nameplate aperture **106** may be disposed a second nameplate distance **111** from nameplate ventral end **104**. Illustratively, second nameplate distance **111** may be a distance in a range of 0.9 to 1.2 inches, e.g., second nameplate distance **111** may be a distance of 1.08 inches. In one or more embodiments, second nameplate distance **111** may be a distance of less than 0.9 inches or greater than 1.2 inches. Illustratively, third nameplate aperture **107** may be disposed a third nameplate distance **112** from nameplate distal end **101**. In one or more embodiments, third nameplate distance **112** may be a distance in a range of 0.9 to 1.2 inches, e.g., third nameplate distance **112** may be a distance of 1.05 inches. Illustratively, third nameplate distance **112** may be a distance of less than 0.9 inches or greater than 1.2 inches. In one or more embodiments, fourth nameplate aperture **108** may be disposed a forth nameplate distance **113** from nameplate distal end **101**. Illustratively, forth nameplate distance **113** may be a distance in a range of 0.2 to 0.4 inches, e.g., fourth nameplate distance **113** may be a distance of 0.3 inches. In one or more embodiments, fourth nameplate distance **113** may be a distance of less than 0.2 inches or greater than 0.4 inches.

Illustratively, nameplate **100** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. In one or more embodiments, nameplate **100** may be manufactured

from a material suitable for sterilization in a medical autoclave. Illustratively, nameplate **100** may be manufactured from a material configured to withstand exposure to temperatures, pressures, and ambient conditions present in a medical autoclave without degradation. For example, nameplate **100** may be configured to function normally after exposure in a temperature 250° F. for 15 minutes at an atmospheric pressure of 15 psi.

FIGS. **2**A and **2**B are schematic diagrams illustrating a base **200**. FIG. **2**A illustrates a top view of base **200**. FIG. **2**B illustrates a side view of base **200**. In one or more embodiments, base **200** may comprise a base distal end **201**, a base proximal end **202**, a base dorsal end **203**, a base ventral end **204**, a base floor **205**, a distal lip **211**, a proximal lip **212**, a third support mechanism housing **215**, a fourth support mechanism housing **216**, a first retention mechanism housing **217**, a second retention mechanism housing **218**, and a base hoist **230**. Illustratively, base floor **205** may comprise one or more apertures configured to facilitate sterilization in a medical autoclave, e.g., base floor **205** may be configured to facilitate ingress of steam into base **200** and egress of steam out from base **200**. In one or more embodiments, base hoist **230** may be configured to facilitate sterilization in a medical autoclave, e.g., base hoist **230** may be configured to facilitate ingress of steam into base **200** and egress of steam out from base **200**.

Illustratively, third support mechanism housing **215** may be disposed a first base distance **220** from base dorsal end **203**. In one or more embodiments, first base distance **220** may be a distance in a range of 0.6 to 0.8 inches, e.g., first base distance **220** may be a distance of 0.715 inches. Illustratively, first base distance **220** may be a distance of less than 0.6 inches or greater than 0.8 inches. In one or more embodiments, third support mechanism housing **215** may be disposed a second base distance **221** from base proximal end **202**. Illustratively, second base distance **221** may be a distance in a range of 1.2 to 1.6 inches, e.g., second base distance **221** may be a distance of 1.403 inches. In one or more embodiments, second base distance **221** may be a distance of less than 1.2 inches or greater than 1.6 inches.

Illustratively, first retention mechanism housing **217** may be disposed a third base distance **222** from base distal end **201**. In one or more embodiments, third base distance **222** may be a distance in a range of 1.6 to 1.9 inches, e.g., third base distance **222** may be a distance of 1.793 inches. Illustratively, third base distance **222** may be a distance of less than 1.6 inches or greater than 1.9 inches. In one or more embodiments, first retention mechanism housing **217** may be disposed a fourth base distance **223** from base ventral end **204**. Illustratively, fourth base distance **223** may be a distance in a range of 0.8 to 1.0 inches, e.g., fourth base distance **223** may be a distance of 0.9 inches. In one or more embodiments, fourth base distance **223** may be a distance of less than 0.8 inches or greater than 1.0 inches.

Illustratively, second retention mechanism housing **218** may be disposed a fifth base distance **224** from base dorsal end **203**. In one or more embodiments, fifth base distance **224** may be a distance in a range of 1.1 to 1.4 inches, e.g., fifth base distance **224** may be a distance of 1.275 inches. Illustratively, fifth base distance **224** may be a distance of less than 1.1 inches or greater than 1.4 inches. In one or more embodiments, second retention mechanism housing **218** may be disposed a sixth base distance **225** from base distal end **201**. Illustratively, sixth base distance **225** may be a distance in a range of 1.4 to 1.8 inches, e.g., sixth base distance **225** may be a distance of 1.673 inches. In one or more embodiments, sixth base distance **225** may be a distance of less than 1.4 inches or greater than 1.8 inches.

Illustratively, fourth support mechanism housing **216** may be disposed a seventh base distance **226** from base proximal end **202**. In one or more embodiments, seventh base distance **226** may be a distance in a range of 3.8 to 4.4 inches, e.g., seventh base distance **226** may be a distance of 4.141 inches. Illustratively, seventh base distance **226** may be a distance of less than 3.8 inches or greater than 4.4 inches. In one or more embodiments, fourth support mechanism housing **216** may be disposed an eighth base distance **227** from base ventral end **204**. Illustratively, eighth base distance **227** may be a distance in a range of 0.8 to 1.4 inches, e.g., eighth base distance **227** may be a distance of 1.194 inches. In one or more embodiments, eighth base distance **227** may be a distance of less than 0.8 inches or greater than 1.4 inches.

Illustratively, base **200** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. In one or more embodiments, base **200** may be manufactured from a material suitable for sterilization in a medical autoclave. Illustratively, base **200** may be manufactured from a material configured to withstand exposure to temperatures, pressures, and ambient conditions present in a medical autoclave without degradation. For example, base **200** may be configured to function normally after exposure in a temperature 250° F. for 15 minutes at an atmospheric pressure of 15 psi.

FIGS. **3**A and **3**B are schematic diagrams illustrating a lid **300**. FIG. **3**A illustrates a top view of lid **300**. FIG. **3**B illustrates a side view of lid **300**. In one or more embodiments, lid **300** may comprise a lid distal end **301**, a lid proximal end **302**, a lid dorsal end **303**, a lid ventral end **304**, a lid top **305**, a lid projection **310**, a first support mechanism housing **315**, a first alternative support mechanism housing **316**, a second support mechanism housing **317**, a second alternative support mechanism housing **318**, a proximal barb **330**, and a distal barb **331**. Illustratively, proximal barb **330** may be configured to interface with proximal lip **212** and distal barb **331** may be configured to interface with distal lip **211** to temporarily attach lid **300** to base **200**. For example, a portion of proximal barb **330** and a portion of distal barb **331** may be configured to temporarily attach lid **300** to base **200** by creating a friction force with a portion of proximal lip **212** and distal lip **211**, respectively. Illustratively, lid top **305** may comprise one or more apertures configured to facilitate sterilization in a medical autoclave, e.g., lid top **305** may comprise one or more apertures configured to facilitate ingress of steam into base **200** and egress of steam out from base **200**.

In one or more embodiments, first support mechanism housing **315** may be disposed a first lid distance **320** from lid dorsal end **303**. Illustratively, first lid distance **320** may be a distance in a range of 0.4 to 0.8 inches, e.g., first lid distance **320** may be a distance of 0.598 inches. In one or more embodiments, first lid distance **320** may be a distance of less than 0.4 inches or greater than 0.8 inches. Illustratively, first support mechanism housing **315** may be disposed a second lid distance **321** from lid proximal end **320**. In one or more embodiments, second lid distance **321** may be a distance in a range of 1.25 to 1.75 inches, e.g., second lid distance **321** may be a distance of 1.425 inches. Illustratively, second lid distance **321** may be a distance of less than 1.25 inches or greater than 1.75 inches.

In one or more embodiments, first alternative support mechanism housing **316** may be disposed a third lid distance **322** from lid proximal end **302**. Illustratively, third lid distance **322** may be a distance in a range of 1.8 to 2.3

inches, e.g., third lid distance **322** may be a distance of 2.175 inches. In one or more embodiments, third lid distance **322** may be a distance of less than 1.8 inches or greater than 2.3 inches. Illustratively, first alternative support mechanism housing **316** may be disposed a fourth lid distance **323** from lid ventral end **304**. In one or more embodiments, fourth lid distance **323** may be a distance in a range of 1.2 to 1.7 inches, e.g., forth lid distance **323** may be a distance of 1.478 inches. Illustratively, fourth lid distance **323** may be a distance of less than 1.2 inches or greater than 1.7 inches.

In one or more embodiments, second support mechanism housing **317** may be disposed a fifth lid distance **324** from lid dorsal end **303**. Illustratively, fifth lid distance **324** may be a distance in a range of 1.2 to 1.7 inches, e.g., fifth lid distance **324** may be a distance of 1.478 inches. In one or more embodiments, fifth lid distance **324** may be a distance of less than 1.2 inches or greater than 1.7 inches. Illustratively, second support mechanism housing **317** may be disposed a sixth lid distance **325** from lid distal end **301**. In one or more embodiments, sixth lid distance **325** may be a distance in a range of 1.8 to 2.4 inches, e.g., sixth lid distance **325** may be a distance of 2.175 inches. Illustratively, sixth lid distance **325** may be a distance of less than 1.8 inches or greater than 2.4 inches.

In one or more embodiments, second alternative support mechanism housing **318** may be disposed a seventh lid distance **327** from lid distal end **301**. Illustratively, seventh lid distance **327** may be a distance in a range of 1.2 to 1.8 inches, e.g., seventh lid distance **327** may be a distance of 1.425 inches. In one or more embodiments, seventh lid distance **327** may be a distance of less than 1.2 inches or greater than 1.8 inches. Illustratively, second alternative support mechanism housing **318** may be disposed an eighth lid distance **327** from lid ventral end **304**. In one or more embodiments, eighth lid distance **327** may be a distance in a range of 0.4 to 0.8 inches, e.g., eighth lid distance **327** may be a distance of 0.598 inches. Illustratively, eighth lid distance **327** may be a distance of less than 0.4 inches or greater than 0.8 inches.

Illustratively, lid **300** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. In one or more embodiments, lid **300** may be manufactured from a material suitable for sterilization in a medical autoclave. Illustratively, lid **300** may be manufactured from a material configured to withstand exposure to temperatures, pressures, and ambient conditions present in a medical autoclave without degradation. For example, lid **300** may be configured to function normally after exposure in a temperature 250° F. for 15 minutes at an atmospheric pressure of 15 psi.

FIG. **4** is a schematic diagram illustrating an exploded view of an instrument sterilization container assembly **400**. In one or more embodiments, instrument sterilization container assembly **400** may comprise a nameplate **100**, a base **200**, a lid **300**, a first support mechanism **405**, a first alternative support mechanism **406**, a second support mechanism **407**, a second alternative support mechanism **408**, a third support mechanism **415**, a fourth support mechanism **416**, a first retention mechanism **417**, a second retention mechanism **418**, a first support mechanism sleeve **425**, a first alternative support mechanism sleeve **426**, a second support mechanism sleeve **427**, a second alternative support mechanism sleeve **428**, a third support mechanism sleeve **435**, a fourth support mechanism sleeve **436**, a first retention mechanism sleeve **437**, and a second retention mechanism sleeve **438**.

FIGS. **5**A and **5**B are schematic diagrams illustrating an assembled base **500**. FIG. **5**A illustrates a top view of assembled base **500**. FIG. **5**B illustrates a side view of assembled base **500**. In one or more embodiments, third support mechanism **415** may be disposed within third support mechanism housing **215**. Illustratively, third support mechanism **415** may be threaded and third support mechanism housing **215** may have threading corresponding to threading of third support mechanism **415**. In one or more embodiments, third support mechanism **415** may be fixed within third support mechanism housing **215**. For example, third support mechanism **415** may be fixed within third support mechanism housing **215** by an adhesive, an interference fit, a weld, or any suitable fixation means. Illustratively, third support mechanism **415** may be disposed within third support mechanism housing **215** wherein a portion of third support mechanism **415** extends out from base floor **205** and into base **200**. In one or more embodiments, third support mechanism **415** may be disposed within third support mechanism housing **215** wherein a portion of third support mechanism **415** extends out from base floor **205** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of third support mechanism **415** may extend out from base floor **205** a distance of 0.55 inches. Illustratively, third support mechanism **415** may be disposed within third support mechanism housing **215** wherein a portion of third support mechanism **415** extends out from base floor **205** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, third support mechanism sleeve **435** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, third support mechanism sleeve **435** may comprise a silicon tube, e.g., third support mechanism sleeve **435** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or more embodiments, third support mechanism sleeve **435** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., third support mechanism sleeve **435** may comprise a material having a hardness rating of 60 Shore A. Illustratively, third support mechanism sleeve **435** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., third support mechanism sleeve **435** may have an outer diameter of 0.185 inches. In one or more embodiments, third support mechanism sleeve **435** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, third support mechanism sleeve **435** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., third support mechanism sleeve **435** may have an inner diameter of 0.104 inches. In one or more embodiments, third support mechanism sleeve **435** may be disposed over a portion of third support mechanism **415**, e.g., third support mechanism sleeve **435** may be disposed over a portion of third support mechanism **415** extending out from base floor **205** and into base **200**. Illustratively, third support mechanism sleeve **435** may be fixed to a portion of third support mechanism **415** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, fourth support mechanism **416** may be disposed within fourth support mechanism housing **216**. Illustratively, fourth support mechanism **416** may be threaded and fourth support mechanism housing **216** may have threading corresponding to threading of fourth support mechanism **416**. In one or more embodiments, fourth support mechanism **416** may be fixed within fourth support mechanism housing **216**. For example, fourth support mechanism **416** may be fixed within fourth support

mechanism housing **216** by an adhesive, an interference fit, a weld, or any suitable fixation means. Illustratively, fourth support mechanism **416** may be disposed within fourth support mechanism housing **216** wherein a portion of fourth support mechanism **416** extends out from base floor **205** and into base **200**. In one or more embodiments, fourth support mechanism **416** may be disposed within fourth support mechanism housing **216** wherein a portion of fourth support mechanism **416** extends out from base floor **205** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of fourth support mechanism **416** may extend out from base floor **205** a distance of 0.55 inches. Illustratively, fourth support port mechanism **416** may be disposed within fourth support mechanism housing **216** wherein a portion of fourth support mechanism **416** extends out from base floor **205** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, fourth support mechanism sleeve **436** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, fourth support mechanism sleeve **436** may comprise a silicon tube, e.g., fourth support mechanism sleeve **436** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or more embodiments, fourth support mechanism sleeve **436** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., fourth support mechanism sleeve **436** may comprise a material having a hardness rating of 60 Shore A. Illustratively, fourth support mechanism sleeve **436** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., fourth support mechanism sleeve **436** may have an outer diameter of 0.185 inches. In one or more embodiments, fourth support mechanism sleeve **436** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, fourth support mechanism sleeve **436** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., fourth support mechanism sleeve **436** may have an inner diameter of 0.104 inches. In one or more embodiments, fourth support mechanism sleeve **436** may be disposed over a portion of fourth support mechanism **416**, e.g., fourth support mechanism sleeve **436** may be disposed over a portion of fourth support mechanism **416** extending out from base floor **205** and into base **200**. Illustratively, fourth support mechanism sleeve **436** may be fixed to a portion of fourth support mechanism **416** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, first retention mechanism **417** may be disposed within first retention mechanism housing **217**. Illustratively, first retention mechanism **417** may be threaded and first retention mechanism housing **217** may have threading corresponding to threading of first retention mechanism **417**. In one or more embodiments, first retention mechanism **417** may be fixed within first retention mechanism housing **217**. For example, first retention mechanism **417** may be fixed within first retention mechanism housing **217** by an adhesive, an interference fit, a weld, or any suitable fixation means. Illustratively, first retention mechanism **417** may be disposed within first retention mechanism housing **217** wherein a portion of first retention mechanism **417** extends out from base floor **205** and into base **200**. In one or more embodiments, first retention mechanism **417** may be disposed within first retention mechanism housing **217** wherein a portion of first retention mechanism **417** extends out from base floor **205** a distance in a range of 0.3 to 0.7 inches, e.g., a portion of first retention mechanism **417** may extend out from base floor **205** a distance of 0.55 inches. Illustratively, first retention mechanism **417** may be disposed within first retention mechanism housing **217** wherein a portion of first retention mechanism **417** extends out from base floor **205** a distance of less than 0.3 inches or greater than 0.7 inches.

In one or more embodiments, first retention mechanism sleeve **437** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, first retention mechanism sleeve **437** may comprise a silicon tube, e.g., first retention mechanism sleeve **437** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or more embodiments, first retention mechanism sleeve **437** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., first retention mechanism sleeve **437** may comprise a material having a hardness rating of 60 Shore A. Illustratively, first retention mechanism sleeve **437** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., first retention mechanism sleeve **437** may have an outer diameter of 0.185 inches. In one or more embodiments, first retention mechanism sleeve **437** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, first retention mechanism sleeve **437** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., first retention mechanism sleeve **437** may have an inner diameter of 0.104 inches. In one or more embodiments, first retention mechanism sleeve **437** may be disposed over a portion of first retention mechanism **417**, e.g., first retention mechanism sleeve **437** may be disposed over a portion of first retention mechanism **417** extending out from base floor **205** and into base **200**. Illustratively, first retention mechanism sleeve **437** may be fixed to a portion of first retention mechanism **417** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, second retention mechanism **418** may be disposed within second retention mechanism housing **218**. Illustratively, second retention mechanism **418** may be threaded and second retention mechanism housing **218** may have threading corresponding to threading of second retention mechanism **418**. In one or more embodiments, second retention mechanism **418** may be fixed within second retention mechanism housing **218**. For example, second retention mechanism **418** may be fixed within second retention mechanism housing **218** by an adhesive, an interference fit, a weld, or any suitable fixation means. Illustratively, second retention mechanism **418** may be disposed within second retention mechanism housing **218** wherein a portion of second retention mechanism **418** extends out from base floor **205** and into base **200**. In one or more embodiments, second retention mechanism **418** may be disposed within second retention mechanism housing **218** wherein a portion of second retention mechanism **418** extends out from base floor **205** a distance in a range of 0.3 to 0.7 inches, e.g., a portion of second retention mechanism **418** may extend out from base floor **205** a distance of 0.55 inches. Illustratively, second retention mechanism **418** may be disposed within second retention mechanism housing **218** wherein a portion of second retention mechanism **418** extends out from base floor **205** a distance of less than 0.3 inches or greater than 0.7 inches.

In one or more embodiments, second retention mechanism sleeve **438** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, second retention mechanism sleeve **438** may comprise a silicon tube, e.g., second retention mechanism sleeve **438** may comprise a heat stabilized silicon tube configured for use at

temperatures up to 500° F. In one or more embodiments, second retention mechanism sleeve **438** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., second retention mechanism sleeve **438** may comprise a material having a hardness rating of 60 Shore A. Illustratively, second retention mechanism sleeve **438** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., second retention mechanism sleeve **438** may have an outer diameter of 0.185 inches. In one or more embodiments, second retention mechanism sleeve **438** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, second retention mechanism sleeve **438** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., second retention mechanism sleeve **438** may have an inner diameter of 0.104 inches. In one or more embodiments, second retention mechanism sleeve **438** may be disposed over a portion of second retention mechanism **418**, e.g., second retention mechanism sleeve **438** may be disposed over a portion of second retention mechanism **418** extending out from base floor **205** and into base **200**. Illustratively, second retention mechanism sleeve **438** may be fixed to a portion of second retention mechanism **418** by an adhesive, an interference fit, a weld, or any suitable fixation means.

FIGS. **6**A and **6**B are schematic diagrams illustrating an assembled lid **600**. FIG. **6**A illustrates a top view of assembled lid **600**. FIG. **6**B illustrates a side view of assembled lid **600**. In one or more embodiments, first support mechanism **405** may be configured to attach nameplate **100** to lid **300**, e.g., first support mechanism **405** may be disposed within nameplate **100** and lid **300**. Illustratively, first support mechanism **405** may be disposed within first nameplate aperture **105** and first support mechanism housing **315**. In one or more embodiments, first support mechanism **405** may be threaded and first support mechanism housing **315** may have threading corresponding to threading of first support mechanism **405**. Illustratively, first support mechanism **405** may be fixed within first support mechanism housing **315**. In one or more embodiments, a fixation of first support mechanism **405** within first support mechanism housing **315** may be configured to attach nameplate **100** to lid top **305**. Illustratively, first support mechanism **405** may be fixed within first support mechanism housing **315** by an adhesive, an interference fit, a weld, or any suitable fixation means. In one or more embodiments, first support mechanism **405** may be disposed within first nameplate aperture **105** and first support mechanism housing **315** wherein a portion of first support mechanism **405** extends out from lid top **305**. Illustratively, first support mechanism **405** may be disposed within first nameplate aperture **105** and first support mechanism housing **315** wherein a portion of first support mechanism **405** extends out from lid top **305** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of first support mechanism **405** may extend out from lid top **305** a distance of 0.55 inches. In one or more embodiments, first support mechanism **405** may be disposed within first nameplate aperture **105** and first support mechanism housing **315** wherein a portion of first support mechanism **405** extends out from lid top **305** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, first support mechanism sleeve **425** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, first support mechanism sleeve **425** may comprise a silicon tube, e.g., first support mechanism sleeve **425** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or more embodiments, first support mechanism sleeve **425** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., first support mechanism sleeve **425** may comprise a material having a hardness rating of 60 Shore A. Illustratively, first support mechanism sleeve **425** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., first support mechanism sleeve **425** may have an outer diameter of 0.185 inches. In one or more embodiments, first support mechanism sleeve **425** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, first support mechanism sleeve **425** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., first support mechanism sleeve **425** may have an inner diameter of 0.104 inches. In one or more embodiments, first support mechanism sleeve **425** may be disposed over a portion of first support mechanism **405**, e.g., first support mechanism sleeve **425** may be disposed over a portion of first support mechanism **405** extending out from lid top **305**. Illustratively, first support mechanism sleeve **425** may be fixed to a portion of first support mechanism **405** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, first alternative support mechanism **406** may be configured to attach nameplate **100** to lid **300**, e.g., first alternative support mechanism **406** may be disposed within nameplate **100** and lid **300**. Illustratively, first alternative support mechanism **406** may be disposed within second nameplate aperture **106** and first alternative support mechanism housing **316**. In one or more embodiments, first alternative support mechanism **406** may be threaded and first alternative support mechanism housing **316** may have threading corresponding to threading of first alternative support mechanism **406**. Illustratively, first alternative support mechanism **406** may be fixed within first alternative support mechanism housing **316**. In one or more embodiments, a fixation of first alternative support mechanism **406** within first alternative support mechanism housing **316** may be configured to attach nameplate **100** to lid top **305**. Illustratively, first alternative support mechanism **406** may be fixed within first alternative support mechanism housing **316** by an adhesive, an interference fit, a weld, or any suitable fixation means. In one or more embodiments, first alternative support mechanism **406** may be disposed within second nameplate aperture **106** and first alternative support mechanism housing **316** wherein a portion of first alternative support mechanism **406** extends out from lid top **305**. Illustratively, first alternative support mechanism **406** may be disposed within second nameplate aperture **106** and first alternative support mechanism housing **316** wherein a portion of first alternative support mechanism **406** extends out from lid top **305** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of first alternative support mechanism **406** may extend out from lid top **305** a distance of 0.55 inches. In one or more embodiments, first alternative support mechanism **406** may be disposed within second nameplate aperture **106** and first alternative support mechanism housing **316** wherein a portion of first alternative support mechanism **406** extends out from lid top **305** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, first alternative support mechanism sleeve **426** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, first alternative support mechanisms sleeve **426** may comprise a silicon tube, e.g., first alternative support mechanism sleeve **426** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or

more embodiments, first alternative support mechanism sleeve **426** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., first alternative support mechanism sleeve **426** may comprise a material having a hardness rating of 60 Shore A. Illustratively, first alternative support mechanism sleeve **426** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., first alternative support mechanism sleeve **426** may have an outer diameter of 0.185 inches. In one or more embodiments, first alternative support mechanism sleeve **426** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, first alternative support mechanism sleeve **426** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., first alternative support mechanism sleeve **426** may have an inner diameter of 0.104 inches. In one or more embodiments, first alternative support mechanism sleeve **426** may be disposed over a portion of first alternative support mechanism **406**, e.g., first alternative support mechanism sleeve **426** may be disposed over a portion of first alternative support mechanism **406** extending out from lid top **305**. Illustratively, first alternative support mechanism sleeve **426** may be fixed to a portion of first alternative support mechanism **406** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, second support mechanism **407** may be configured to attach nameplate **100** to lid **300**, e.g., second support mechanism **407** may be disposed within nameplate **100** and lid **300**. Illustratively, second support mechanism **407** may be disposed within third nameplate aperture **107** and second support mechanism housing **317**. In one or more embodiments, second support mechanism **407** may be threaded and second support mechanism housing **317** may have threading corresponding to threading of second support mechanism **407**. Illustratively, second support mechanism **407** may be fixed within second support mechanism housing **317**. In one or more embodiments, a fixation of second support mechanism **407** within second support mechanism housing **317** may be configured to attach nameplate **100** to lid top **305**. Illustratively, second support mechanism **407** may be fixed within second support mechanism housing **317** by an adhesive, an interference fit, a weld, or any suitable fixation means. In one or more embodiments, second support mechanism **407** may be disposed within third nameplate aperture **107** and second support mechanism housing **317** wherein a portion of second support mechanism **407** extends out from lid top **305**. Illustratively, second support mechanism **407** may be disposed within third nameplate aperture **107** and second support mechanism housing **317** wherein a portion of second support mechanism **407** extends out from lid top **305** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of second support mechanism **407** may extend out from lid top **305** a distance of 0.55 inches. In one or more embodiments, second support mechanism **407** may be disposed within third nameplate aperture **107** and second support mechanism housing **317** wherein a portion of second support mechanism **407** extends out from lid top **305** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, second support mechanism sleeve **427** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, second support mechanism sleeve **427** may comprise a silicon tube, e.g., second support mechanism sleeve **427** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or more embodiments, second support mechanism sleeve **427** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., second support mechanism sleeve **427** may comprise a material having a hardness rating of 60 Shore A. Illustratively, second support mechanism sleeve **427** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., second support mechanism sleeve **427** may have an outer diameter of 0.185 inches. In one or more embodiments, second support mechanism sleeve **427** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, second support mechanism sleeve **427** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., second support mechanism sleeve **427** may have an inner diameter of 0.104 inches. In one or more embodiments, second support mechanism sleeve **427** may be disposed over a portion of second support mechanism **407**, e.g., second support mechanism sleeve **427** may be disposed over a portion of second support mechanism **407** extending out from lid top **305**. Illustratively, second support mechanism sleeve **427** may be fixed to a portion of second support mechanism **407** by an adhesive, an interference fit, a weld, or any suitable fixation means.

In one or more embodiments, second alternative support mechanism **408** may be configured to attach nameplate **100** to lid **300**, e.g., second alternative support mechanism **408** may be disposed within nameplate **100** and lid **300**. Illustratively, second alternative support mechanism **408** may be disposed within fourth nameplate aperture **108** and second alternative support mechanism housing **318**. In one or more embodiments, second alternative support mechanism **408** may be threaded and second alternative support mechanism housing **318** may have threading corresponding to threading of second alternative support mechanism **408**. Illustratively, second alternative support mechanism **408** may be fixed within second alternative support mechanism housing **318**. In one or more embodiments, a fixation of second alternative support mechanism **408** within second alternative support mechanism housing **318** may be configured to attach nameplate **100** to lid top **305**. Illustratively, second alternative support mechanism **408** may be fixed within second alternative support mechanism housing **318** by an adhesive, an interference fit, a weld, or any suitable fixation means. In one or more embodiments, second alternative support mechanism **408** may be disposed within fourth nameplate aperture **108** and second alternative support mechanism housing **318** wherein a portion of second alternative support mechanism **408** extends out from lid top **305**. Illustratively, second alternative support mechanism **408** may be disposed within fourth nameplate aperture **108** and second alternative support mechanism housing **318** wherein a portion of second alternative support mechanism **408** extends out from lid top **305** a distance in a range of 0.5 to 0.6 inches, e.g., a portion of second alternative support mechanism **408** may extend out from lid top **305** a distance of 0.55 inches. In one or more embodiments, second alternative support mechanism **408** may be disposed within fourth nameplate aperture **108** and second alternative support mechanism housing **318** wherein a portion of second alternative support mechanism **408** extends out from lid top **305** a distance of less than 0.5 inches or greater than 0.6 inches.

In one or more embodiments, second alternative support mechanism sleeve **428** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. Illustratively, second alternative support mechanism sleeve **428** may comprise a silicon tube, e.g., second alternative support mechanism sleeve **428** may comprise a heat stabilized silicon tube configured for use at temperatures up to 500° F. In one or

more embodiments, second alternative support mechanism sleeve **428** may comprise a material having a hardness rating in a range of 55 to 70 Shore A, e.g., second alternative support mechanism sleeve **428** may comprise a material having a hardness rating of 60 Shore A. Illustratively, second alternative support mechanism sleeve **428** may have an outer diameter in a range of 0.17 to 0.2 inches, e.g., second alternative support mechanism sleeve **428** may have an outer diameter of 0.185 inches. In one or more embodiments, second alternative support mechanism sleeve **428** may have an outer diameter of less than 0.17 inches or greater than 0.2 inches. Illustratively, second alternative support mechanism sleeve **428** may have an inner diameter in a range of 0.09 inches to 0.11 inches, e.g., second alternative support mechanism sleeve **428** may have an inner diameter of 0.104 inches. In one or more embodiments, second alternative support mechanism sleeve **428** may be disposed over a portion of second alternative support mechanism **408**, e.g., second alternative support mechanism sleeve **428** may be disposed over a portion of second alternative support mechanism **408** extending out from lid top **305**. Illustratively, second alternative support mechanism sleeve **428** may be fixed to a portion of second alternative support mechanism **408** by an adhesive, an interference fit, a weld, or any suitable fixation means.

FIGS. **7**A and **7**B are schematic diagrams illustrating an assembled instrument sterilization container **700**. FIG. **7**A illustrates a side view of assembled instrument sterilization container **700**. FIG. **7**B illustrates a front view of assembled instrument sterilization container **700**. In one or more embodiments, assembled instrument sterilization container **700** may comprise assembled lid **600** attached to assembled base **500**. Illustratively, proximal barb **330** may be configured to interface with proximal lip **212** and distal barb **331** may be configured to interface with distal lip **211** to temporarily attach lid **300** to base **200**. In one or more embodiments, first support mechanism **405**, first alternative support mechanism **406**, second support mechanism **407**, and second alternative support mechanism **408** may extend out from lid top **305** and into base **200** when assembled lid **600** is attached to assembled base **500**.

Illustratively, a reusable surgical instrument, e.g., an ophthalmic surgical instrument, may be disposed within assembled instrument sterilization container **700** and assembled instrument sterilization container **700** may be disposed within a medical autoclave for sterilization of the reusable surgical instrument. In one or more embodiments, assembled instrument sterilization container **700** may be configured to prevent damage to a reusable surgical instrument, e.g., an ophthalmic surgical instrument, during sterilization in a medical autoclave. Illustratively, assembled sterilization container **700** may be configured to prevent expansion of reusable surgical instrument components, e.g., ophthalmic surgical instrument components, during sterilization in a medical autoclave. In one or more embodiments, assembled instrument sterilization container **700** may be configured to prevent deformation of reusable surgical instrument components, e.g., ophthalmic surgical instrument components, during sterilization in a medical autoclave.

FIG. **8** is a schematic diagram illustrating an instrument orientation **800**. In one or more embodiments, an instrument orientation **800** may comprise an instrument handle **805** having an instrument handle distal end **806** and an instrument handle proximal end **807**. Illustratively, instrument handle **805** may comprise an actuation structure **820** having an actuation structure distal end **821** and an actuation structure proximal end **822**. In one or more embodiments, actuation structure **820** may comprise a plurality of actuation arms **825** wherein each actuation arm **825** of the plurality of actuation arms **825** comprises an extension mechanism **826**. Illustratively, actuation structure **820** may be configured to extend when compressed, e.g., a compression of actuation structure **820** may be configured to increase a distance between actuation structure distal end **821** and actuation structure proximal end **822**. In one or more embodiments, actuation structure **820** may be configured to retract when decompressed, e.g., a decompression of actuation structure **820** may be configured to decrease a distance between actuation structure distal end **821** and actuation structure proximal end **822**. Illustratively, actuation structure **820** may be manufactured from any suitable material, e.g., polymers, metals, metal alloys, etc., or from any combination of suitable materials. In one or more embodiments, actuation structure **820** may be manufactured from a synthetic polymer material, e.g., actuation structure **820** may be manufactured from a thermoplastic material. Illustratively, actuation structure **820** may be manufactured from a material configured to absorb water when sterilized in a medical autoclave, e.g., actuation structure **820** may be manufactured from a Nylon material.

Illustratively, instrument handle **805** may be disposed within assembled base **500** wherein a portion of instrument handle **805** is disposed over third support mechanism **415** and fourth support mechanism **416**. In one or more embodiments, instrument handle **805** may be disposed within assembled base **500** wherein a portion of instrument handle **805** is disposed between first retention mechanism **417** and second retention mechanism **418**. Illustratively, instrument handle **805** may be disposed within assembled base **500** and assembled lid **600** may be attached to assembled base **500** wherein first support mechanism **405** is disposed over a portion of instrument handle **805** and second support mechanism **407** is disposed over a portion of instrument handle **805**. In one or more embodiments, instrument handle **805** may be disposed within assembled base **500** and assembled lid **600** may be attached to assembled base **500** wherein first alternative support mechanism **406** is disposed over a portion of instrument handle **805** and second alternative support mechanism **408** is disposed over a portion of instrument handle **805**. Illustratively, assembled lid **600** may be configured to dispose first support mechanism **405** and second support mechanism **407** over a portion of instrument handle **805** when assembled lid **600** is in a first orientation. In one or more embodiments, assembled lid **600** may be configured to dispose first alternative support mechanism **406** and second alternative support mechanism **408** over a portion of instrument handle **805** when assembled lid **600** is in a second orientation. Illustratively, the second orientation may be the first orientation rotated 180 degrees about a center of assembled lid **600**, e.g., the first orientation of assembled lid **600** may be a mirror image of the second orientation of assembled lid **600**.

In one or more embodiments, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein a portion of instrument handle **805** is disposed below first support mechanism **405** and second support mechanism **407**, a portion of instrument handle **805** is disposed above third support mechanism **415** and fourth support mechanism **416**, and a portion of instrument handle **805** is disposed between first retention mechanism **417** and second retention mechanism **418**. Illustratively, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein a portion of instrument handle **805** is disposed below first alternative support

mechanism **406** and second alternative support mechanism **408**, a portion of instrument handle **805** is disposed above third support mechanism **415** and fourth support mechanism **416**, and a portion of instrument handle **805** is disposed between first retention mechanism **417** and second retention mechanism **418**. In one or more embodiments, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein a first portion of instrument handle **805** abuts first retention mechanism **417** and second retention mechanism **418** and a second portion of instrument handle **805** abuts a portion of base **200**, e.g., instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first retention mechanism **417**, second retention mechanism **418**, and a portion of base **200** prevent an extension of instrument handle distal end **806** relative to instrument handle proximal end **807** during a sterilization of instrument handle **805** in a medical autoclave. Illustratively, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first retention mechanism **417**, second retention mechanism **418**, and a portion of base **200** are configured to prevent an extension of instrument handle distal end **806** relative to handle proximal end **807** during a sterilization of instrument handle **805** in a medical autoclave, e.g., instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first retention mechanism **417**, second retention mechanism **418**, and a portion of handle base **200** are configured to prevent an extension of actuation structure distal end **821** relative to actuation structure proximal end **822** during a sterilization of instrument handle **805** in a medical autoclave. In one or more embodiments, first retention mechanism sleeve **437** and second retention mechanism sleeve **438** may be configured to prevent damage to instrument handle **805** during a sterilization of instrument handle **805** in a medical autoclave, e.g., first retention mechanism sleeve **437** and second retention mechanism sleeve **438** may be configured to prevent damage to actuation structure **820** during a sterilization of instrument handle **805** in a medical autoclave.

In one or more embodiments, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first support mechanism **405**, second support mechanism **407**, third support mechanism **415**, and fourth support mechanism **416** are configured to prevent an expansion of actuation structure **820** during a sterilization of instrument handle **805** in a medical autoclave. Illustratively, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first alternative support mechanism **406**, second alternative support mechanism **408**, third support mechanism **415**, and fourth support mechanism **416** are configured to prevent an expansion of actuation structure **820** during a sterilization of instrument handle **805** in a medical autoclave. In one or more embodiments, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first support mechanism **405**, second support mechanism **407**, third support mechanism **415**, and fourth support mechanism **416** are configured to prevent an expansion of each actuation arm **825** of the plurality of actuation arms **825** during a sterilization of instrument handle **805** in a medical autoclave. Illustratively, instrument handle **805** may be disposed within assembled instrument sterilization container **700** wherein first alternative support mechanism **406**, second alternative support mechanism **408**, third support mechanism **415**, and fourth support mechanism **416** are configured to prevent an expansion of each actuation arm **825** of the plurality of actuation arms **826** during a sterilization of instrument handle **805** in a medical autoclave.

The foregoing description has been directed to particular embodiments of this invention. It will be apparent; however, that other variations and modifications may be made to the described embodiments, with the attainment of some or all of their advantages. Specifically, it should be noted that the principles of the present invention may be implemented in any system. Furthermore, while this description has been written in terms of a sterilization container, the teachings of the present invention are equally suitable to any systems where the functionality may be employed. Therefore, it is the object of the appended claims to cover all such variations and modifications as come within the true spirit and scope of the invention.

What is claimed is:

1. A container comprising:

a base having a base distal end, a base proximal end, a base dorsal end, and a base ventral end;

a base floor of the base;

a lid having a lid distal end, a lid proximal end, a lid dorsal end, and a lid ventral end;

a lid top of the lid;

a first support mechanism disposed in the lid, the first support mechanism extending a distance from the lid top;

a second support mechanism disposed in the base, the second support mechanism extending a first distance from the base floor;

a first retention mechanism disposed in the base, the first retention mechanism extending a second distance from the base floor wherein the first retention mechanism and a portion of the base are configured to prevent an extension of an actuation structure of a surgical instrument handle during a sterilization of the surgical instrument handle in a medical autoclave;

a second retention mechanism disposed in the base, the second retention mechanism extending the second distance from the base floor wherein the second retention mechanism and the portion of the base are configured to prevent the extension of the actuation structure of the surgical instrument handle during the sterilization of the surgical instrument handle in the medical autoclave;

a first retention mechanism sleeve disposed over a portion of the first retention mechanism; and

a second retention mechanism sleeve disposed over a portion of the second retention mechanism.

2. The container of claim **1** further comprising:

a third support mechanism disposed in the lid, the third support mechanism extending the distance from the lid top wherein the first support mechanism and the third support mechanism are configured to prevent an expansion of the actuation structure of the surgical instrument handle during the sterilization of the surgical instrument handle in the medical autoclave.

3. The container of claim **2** wherein the distance from the lid top is in a range of 0.5 to 0.6 inches.

4. The container of claim **1** wherein the second distance from the base floor is in a range of 0.3 to 0.7 inches.

5. The container of claim **1** further comprising:

a distal lip of the base;

a proximal lip of the base;

a distal barb of the lid; and

a proximal barb of the lid.

6. The container of claim 5 further comprising:

one or more apertures of the lid configured to facilitate an ingress of steam into the base during the sterilization of the surgical instrument handle in the medical autoclave.

7. The container of claim 6 further comprising:

one or more apertures of the base floor configured to facilitate the ingress of steam into the base during the sterilization of the surgical instrument handle in the medical autoclave.

8. The container of claim 1 wherein the first retention mechanism is disposed a distance in a range of 1.6 to 1.9 inches from the base distal end.

9. The container of claim 8 wherein the first retention mechanism is disposed a distance in a range of 0.8 to 1.0 inches from the base ventral end.

10. The container of claim 1 wherein the first support mechanism is disposed a distance in a range of 1.8 to 2.4 inches from the lid distal end.

11. The container of claim 10 where the first support mechanism is disposed a distance in a range of 1.2 to 1.7 inches from the lid dorsal end.

12. A container comprising:

a base having a base distal end, a base proximal end, a base dorsal end, and a base ventral end;

a base floor of the base;

a lid having a lid distal end, a lid proximal end, a lid dorsal end, and a lid ventral end;

a lid top of the lid;

a first support mechanism disposed in the lid, the first support mechanism extending out from the lid top;

a second support mechanism disposed in the lid, the second support mechanism extending out from the lid top;

a third support mechanism disposed in the base, the third support mechanism extending out from the base floor;

a first retention mechanism disposed in the base, the first retention mechanism extending out from the base floor;

a second retention mechanism disposed in the base, the second retention mechanism extending out from the base floor wherein the first retention mechanism and the second retention mechanism are configured to prevent an extension of an actuation structure of a surgical instrument handle during a sterilization of the surgical instrument handle in a medical autoclave; and

a first retention mechanism sleeve disposed over a portion of the first retention mechanism, the first retention mechanism sleeve configured to prevent damage to the actuation structure of the surgical instrument handle during the sterilization of the surgical instrument handle in the medical autoclave.

13. The container of claim 12 further comprising:

a fourth support mechanism disposed in the base, the fourth support mechanism extending out from the base floor.

14. The container of claim 12 wherein the first retention mechanism sleeve is manufactured from a material having a hardness rating in a range of 55 to 70 Shore A.

15. The container of claim 12 further comprising:

a first alternative support mechanism disposed in the lid, the first alternative support mechanism extending out from the lid top; and

a second alternative support mechanism disposed in the lid, the second alternative support mechanism extending out from the lid top.

16. The container of claim 12 further comprising:

a distal lip of the base; and

a proximal lip of the base.

17. The container of claim 12 further comprising:

a distal barb of the lid; and

a proximal barb of the lid.

18. The container of claim 12 further comprising:

one or more apertures of the lid configured to facilitate an ingress of steam into the base during the sterilization of the surgical instrument handle in the medical autoclave.

19. The container of claim 12 further comprising:

one or more apertures of the base floor configured to facilitate the ingress of steam into the base during the sterilization of the surgical instrument handle in the medical autoclave.

20. The container of claim 12 further comprising:

a plurality of actuation arms of the actuation structure.

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